My Model

A Metaphysical Framework

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Introduction

If we aspire to understand how exactly the world works, we can never know the truth. But this is not the end of the world. The scientific method involves building *models* of various phenomena we observe and using them to make predictions. That's the only instrument available to science. Metaphysics is similar and it is not. Metaphysical theories are also models, but they cannot be tested in experiments. Yet, they can be useful in framing or assisting the work of scientists. My hope is that *My Model* can serve this purpose.

We all search for answers to the most fundamental questions of our existence. What is the meaning of life? Do we have free will? What is consciousness? What is reality? Answers to these and other burning questions follow naturally from the proposed framework. At the center is the postulate that information is fundamental. This idea is not novel and has been steadily gaining ground. We extend it further by proposing a conceptual structure for the world we live in. The presentation is at a high level that doesn't require any specialized knowledge from the reader.

I. The Foundational Assumption

This framework is based on the "it from bit" postulate originating from John Wheeler's hypothesis:

> "… every physical quantity, every it, derives its ultimate significance from bits, binary yes-or-no indications, a conclusion which we epitomize in the phrase, *it from bit*… Every it — every particle, every field of force, even the spacetime continuum itself — derives its function, its meaning, its very existence entirely — even if in some contexts indirectly — from the apparatus elicited answers to yes or no questions, binary choices, **bits**… It from bit symbolizes the idea that every item of the physical world has at bottom — at a very deep bottom, in most instances — an immaterial source and explanation; that what we call reality arises in the last analysis from the posing of yes-no questions and the registering of equipment-evoked responses; in short, that all things physical are information-theoretic in origin and this is a **participatory universe**."

Thus, everything that we observe and perceive is some form of organized collection of bits, which is a familiar concept of *data*. Note the difference between the *object* of observation and the *results* of observation. The idea that the results (products) of observation are data is not novel and is widely accepted. What Wheeler is saying is different. He posits that the *objects* of observation ("things physical") are data. This has been considered a radical idea since it was published in 1989, the idea that has not been widely accepted yet.

II. Definitions

1. **The universe is a closed system** by definition. There is nothing "outside" of the universe. The universe is everything there is in its totality.

2. **Connectedness**. There are no isolated parts in the universe, parts that do not interact and communicate with other parts. If the universe is partitioned in perpetually isolated from each other parts (none of which can detect and interact with other parts), we will narrow our definition of the universe to the part we are in.

3. **Time and Space.** Time exists in the following sense: the universe is somehow changing, it's not static/frozen. No assumption is made about the existence of space.

4. The universe is **conscious** in the following sense: it includes a *data system* we'll call **Data System (DS)**. DS is an organized collection of bits. It is through this data system that the universe perceives itself – all of it or some aspects of it.

Note 1. Statements 1-4 are NOT assumptions; they state the obvious. Clearly, something exists, is changing, and we, humans, are conscious by definition. This something can be limited to information/mental content/ideas; thus, the statements are not in contradiction with objective or subjective idealism. Obviously, they are also not in contradiction with physicalism if DS is limited to our thoughts, knowledge, theories, and information as understood by mainstream physics.

Note 2. The question of hardware/carrier/substrate DS runs on and whether it even needs a carrier belongs to science rather than metaphysics. For that reason, it's not addressed in this framework.

5. **The Model (TM)** is the subset of DS that includes the aggregate of all human beings' experiences, knowledge, perceptions, thoughts, and feelings.

6. **My Model (MM)** is a subset of TM that includes knowledge, beliefs, feelings, subjective experiences, etc. of a *particular person*. It is how that person sees the world. By definition TM is a union of MMs for all people ever lived.

III. Main Postulates and Implications

7. **TM is our model of DS.** Most often it is believed that TM approximates what the universe actually is, i.e., that TM approximates reality and is its model. We postulate that TM is a *collective model of DS*, rather than the universe. However, in a limiting case of DS being the universe the traditional belief would be valid.

   TM is what we are limited to in our collective observing and perceiving of the world we live in – cosmological objects, inanimate world, all types of energy fields, elementary particles and what they are made of, plants, animals, and people along with their thoughts, feelings, and perceptions. Since TM is a subsystem of DS, it is a data system as well. *TM as a data system is our collective model of DS*, a larger data system, which is a superset of TM. Humans belong to DS, and we perceive DS by building TM, its model. Thus, TM is a data model of a data system, a view of DS humans develop from "the inside" since we are part of DS.

   It's important to emphasize that all things which we consider to be objects in the physical sense, are in fact data and belong to DS. That's why "it from bit." Stating that TM is a data system is trivial because we perceive the world exclusively by receiving and processing data. However, our main postulate is different. It states that the information we create from received data is about another *data system* rather than about the physical world. Yes, in that sense we live in the Matrix.

The reason for this foundational assumption is that particle physics has not yet discovered any of the smallest building blocks of the universe. We don't have any experimental evidence supporting the idea that quantum fields or strings are fundamental rather than emergent/composite. All we can state with confidence is that quantum fields and strings are mathematical constructs, mathematical models. At the same time there is clearly an informational/data aspect of elementary particles and other entities physics uses to describe the microworld.

8. **The main structure.** Traditionally, physicalists see the world as a two-layer system: the physical world (the universe) and consciousness, an emergent phenomenon of the physical world. In that view, conscious activities result in creating our knowledge of the world, or the model of how the world runs. According to this view our models of the world are the products of human consciousness. Thus, the end result is a three-layer system: the universe –> consciousness –> the model of the world.

   Unfortunately, this framework leads to questions that are impossible or hard to answer (mind-body problem, hard problem of consciousness, etc.). In particular, although consciousness is considered to be a product of the physical world, their interaction, including the effects of conscious activities in the physical world, are excluded from the domain of physics.

   Our approach differs from the traditional one. We replace the three-layer system with *a nested structure of four systems: 1) the universe, 2) DS, 3) TM, a subsystem of DS, 4) human consciousness, which is not an emergent phenomenon, but a subsystem of TM.*

   Note that we are not assuming that the entire universe is a data system, only that DS and TM are. Yet, the limiting case of DS being the universe is a possibility. In such a case the first two systems, the universe and DS, collapse in one and the universe is just the data system.

   The main benefit of our approach is reducing the analyzable world to a familiar concept of data system. This allows us to draw conclusions about the world we live in relying on our knowledge of properties of data systems, which have been extensively studied. In particular, the proposed structure allows to resolve questions that remain unanswered in the physicalist model of the world.

IV. Data System (DS)

Why do we postulate DS? It seems that the four-layer structure could be replaced by a simpler three-layer one: "the universe – TM – consciousness." In other words, if our world view is strictly limited to TM, does it make any sense to talk about "DS less TM"? I believe it does. The alternative is to assume that humans are exceptional in their ability to communicate and interact with other entities. That animals, plants, inanimate objects will stop interacting, or will cease to exist in the absence of people. That there is no evolution with humans being one of the latest high points. This amounts to a view, which, given data provided by science, I find untenable.

A little different perspective on the same issue. Let's assume that TM, our model of the universe, is the *super* data system, i.e., that DS=TM. Then there are two options possible. Either TM is the product of the universe and TM gives rise to consciousness, which is physicalism with all known problems stemming from this view. Or consciousness is fundamental and gives rise to TM, which is idealism. In the latter case, the basic question "what is consciousness?" remains unanswered. Not a data system? Then what?

Alternatively, if it's a data system, then consciousness = TM = DS because we assumed that TM is the super data system. Thus, again we have to conclude that humans are exceptional in their ability to communicate and interact with other entities. Not a likely scenario, in my view, although it cannot be tested and proved false.

What constitutes DS less TM? The totality of all interactions *not involving human perceptions and the results of processing received data* – data systems known to us as matter, fields, physical objects, all life forms including humans, their perception of the world (excluding human perceptions) along with the results of their processing of collected data as well as data systems not yet discovered by humans. Let's consider an example.

> In a data system data can be stored and transmitted. Storing data is relatively simple. A small stone lying on a slope of a hill is a subsystem of DS. We perceive it as an organization of elementary particles and quantum fields. But deep at the bottom there is nothing but data organized as a subsystem of DS we designated as "small stone." Although it seems static, our stone is in continuous communication with its "environment" in DS. For example, elementary particles from the environment are arriving, bouncing off, traversing through the stone, etc. Thus, the information content of the stone (subsystem of DS) is in continuous flux. But the bulk of data making up the stone maintains its organization. That's why we continue to perceive it as being static. That's the reason I called the storing of stone information "relatively simple" – it's not as simple as might seem.
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> All of a sudden, a wind gust dislocates the stone from its resting position and the stone starts to roll down the hill. Now much more pronounced changes are taking place in DS. As we observe the rolling stone, we "instinctively" (i.e., informed by our education) understand it from the perspective of the combination of the laws of motion, laws of thermodynamics, as well as other applicable laws of physics. That's how we learned to perceive the world. That's our default and the *only* model. To the extent that we don't even consider it to be a model at all; to us it's obvious that that's how the world is organized, that *it is the reality*. Yet, the observed physical processes causing and accompanying the rolling of the stone are nothing else but the communication flows occurring in DS. But it takes a leap of perception to start viewing the world through this lens.

Why does DS exist? The exact purpose of DS is not known and could be unknowable. It could've been created to give rise to consciousness of the entire universe, or to perceive and analyze some local phenomenon pursuing a limited in scope goal. It is tempting to think that DS's purpose is to perceive the entire universe and serve as the universe's mind. It's also tempting to believe that DS is modeling (describing) entities and processes taking place in the universe with some reasonable accuracy. Then studying DS through growing and refining TM we learn more about the universe and how it works. Put another way, TM could be a good model of the universe. But this is no more than hope.

Even if DS is actually a model (representation) of the universe, then the question of how accurately TM describes the original universe is meaningless. This is because such accuracy cannot be estimated. In addition, the universe, DS, and TM are continuously changing. That is another reason to dismiss the question of how well TM describes the universe.

Alternatively, if DS is not meant to model the entire universe, then in certain extreme cases it could be very different from the universe.

> Example 1. Let's consider a case of a nested sequence of DSs, each being a simulation run by the previous one (per Nick Bostrom et al). The universe's DS will be the first element in this sequence.

Let's also assume that each simulated universe is a closed system – it's run in such a way that no information about its parent could be obtained. Then each DS could have been created for some very specific purpose, hence, not being representative at all of its parent, i.e., not being its model.

Example 2. DS is a computer game, a simulation with certain controls available to players.

If DS is the mind of the universe, then certain elements of DS could be thought of as *models* of some parts, properties, aspects, etc. of the universe. In such a case we could hypothesize that the universe uses DS to *analyze* itself and evolve.

Does the universe make changes to DS and vice versa? (Here by "the universe" I mean "the universe less DS" rather than the entire universe. It should be clear from the context which of these two meanings is assumed.) Given that DS exists or was created by the universe for a purpose, it's most likely that DS is causing changes in the universe besides changes it makes to itself. Being "observed" by the universe i.e., pulling data from DS, obviously causes some changes to DS. But the universe might interact with DS for other reasons as well. In any case, it follows from Connectedness (Statement 3) that there is a communication link between the universe and DS.

As a data system DS runs (operates) by some rules. It is important to differentiate between the running of DS as a data system resulting in all kinds of activities in DS and a particular type of these activities – *self-perception*. DS is perceiving *itself* and such self-perception activities are carried out by what we usually refer to as consciousness (in a broader sense, not limited to human consciousness). DS is conscious because it includes the activities of people who are conscious by definition. Thus, we could say that both the universe and DS are conscious.

V. The Universe

As of now we don't know if we know anything about the universe, *the entirety of our knowledge is limited to the knowledge of DS.* And of course, TM includes our models of entities in "DS less TM." Why then bother discussing the universe and its relationship with DS and TM? Why not just assume that DS ***is*** the universe? It's only natural to define everything we'll ever perceive through our consciousness, thoughts, feelings, observations, and measuring instruments as the universe. Of course, postulating that DS = the universe is a viable option. Moreover, this could actually be the case. Yet, I find such a postulate unjustified and unnecessarily constraining. Here are some of the reasons. As argued in the previous section we posit that, in general case, there is a communication link between the universe and DS.

a) "No direct interaction with the universe scenario." In this *base-case scenario* we assume that our knowledge is limited to models of various components of DS. As discussed earlier, some of such components could be in turn models of some aspects of the universe. In any case, in this scenario people have no direct interaction with the universe. Rather, we create *representations* of things and phenomena (things-in-themselves) and operate exclusively with these representations. We have no means to differentiate between our representations of entities created by DS for some internal ("in-house") purposes, or representations of DS entities, which include information about the universe. All of such representations are our *models* of components of DS. Hence, the term "The Model." If no *direct* interaction between the universe and humans is possible it might make sense to assume for all practical purposes that the universe = DS.

Note. The use of the term "direct" here requires clarification. Humans are subsystems of DS. It's questionable if we could ever receive direct information from the outside of DS. Yet, such a possibility cannot be ruled out. Another possibility is that we do receive information about the universe through DS, but we somehow know that it's coming from the universe (from the outside of DS).

b) "Breaking into the universe scenario." It is possible that through interacting with DS entities TM gives rise to a reasonable model of the universe and with time is gaining a fuller and more precise description of it. This might enable humans to become active in making indirect, i.e., through DS, changes to the universe. Further, it's conceivable that we develop a direct communication channel to the universe and even gain full control over it. This scenario is similar to current projections of superintelligence taking control over humans or something similar to "The Matrix" scenario. Substantive changes to the universe as opposed to just information uploads from TM/DS might be already happening. As well as direct two-way interactions between TM and the universe. However, science is not currently considering and researching such interactions. How to distinguish between the growth of TM "within its bounds" and the penetration of TM into the universe is an open question.

c) "Direct contact initiated by the universe scenario." One day the system "humans + TM" might become of such significance to the universe (or had already become) that it establishes a direct interaction channel between the two.

d) "Digital universe scenario." Assuming that the universe is limited to DS would mean that the universe is a data system. So far there is no evidence to support such an assumption. Yet, this case could not be ruled out.

In the absence of any experimental data that could support cases b)-d) I opt for the base case – *No Direct Interaction with the Universe Scenario*. Thus, *for the time being* we'll equate the universe with DS but will remain open to other possibilities. That's a subtle yet meaningful difference between the base case and the *Digital Universe Scenario*. In the following presentation I'll be using the term "universe" in both its original meaning and as a synonym of DS. It should be clear from the context which of these two meanings is implied.

VI. The Model (TM)

What does belong to TM and what does not? We define TM as the sum of all people's experiences, perceptions, feelings, thoughts, beliefs, knowledge, etc. *from their perspectives*. Consistency of such perspectives is not a requirement or expectation. E.g., people have systems of belief that are in direct contradiction with each other. Scientific theories are also often incompatible with each other. This messy picture is how collectively all people ever lived have perceived the world.

However, the experiences of, say, a dog are not in TM. Yet, *human-built models* of how dogs perceive the world belong to TM. Very much like the position taken by Thomas Nagel in his "What Is It Like to Be a Bat?" paper.

In the grand scheme of things, the concept of TM is not particularly special. It's just a subsystem of DS with no features that could justify its special status. Any other subset of DS is a data system as well. Moreover, any such subset has its own "view" of DS – the subset receives data from DS, somehow processes it, and sends data to other parts of DS. Thus, this subset of DS is a data system with certain

internal communication and interaction processes. It is also interacting and communicating with its environment in DS.

Yet, for us TM is a very special data system – it embraces the totality of what we call existence and life. It is how we see the world we live in. TM changes and grows continuously with new experiences, knowledge, thoughts, and feelings accumulated by people.

TM includes consciousness but is not limited to it. This is because perception does not require consciousness: certain perception activities are unconscious. People have all kinds of interactions with DS, which are not conscious processes. For example, there are many biological processes that people have no phenomenal awareness of – our bodies digest food, supply organs with blood to deliver oxygen, etc. Neural activities, reflexes, uncontrolled healing of wounds are other examples. Our bodies also interact with the outside world – such exchange of information leads to learning experiences and behaviors some of which are unconscious. In short, TM is a superset of human consciousness rather than vice versa.

Recall our definition of My Model (MM), which is a subset of TM that includes knowledge, beliefs, feelings, subjective experiences, etc. of a *particular person*. It is how that person sees the world. TM is a union of MMs for all people ever lived. Subjective (phenomenal) aspect of each MM is its key feature. No two people can have exactly the same experiences. These people are different subsystems of DS and, in addition, "view" the world from different "locations" in DS. Just like it's impossible to take two exactly same photos from two different points in space. Thus, the set intersection of any two MMs is an empty set. What appears as being objective is at best intersubjective – "sameness" is a vague concept and people have to negotiate what they agree to call the same. For example, no two people can have exactly the same perception of "yellow" looking at the same yellow flower. Yet, they manage to agree to call it yellow, unless one or both of them are color blind.

Are people unique in their ability to create their models of the world? The fact that certain types of human perception do not require consciousness creates a possibility that non-conscious data subsystems of DS could also perceive the world. Put another way, they could have their own models of the world. I believe that higher levels of life forms like animals and plants have their own models of the world, which are simpler than TM, yet similar to it in certain respects. But can we speculate that inanimate objects perceive the world too? It all depends on how we define perception. For example, machine perception is a legitimate concept in AI. If perception is loosely defined as the ability of a system to receive and process data, then perception could be an attribute of almost any data system. From that perspective cybernetics per Norbert Wiener, which is a very broad field of study, deals with a sliver of data systems capable of perceiving the world.

I conclude this section with a note important for further reading.

Our languages – natural, formal, programming, etc. – are also models. In natural languages concepts, words, and terms along with their semantics are created within a particular paradigm, a collective view of the world. But we often forget that concepts and the terms conveying them are nothing but models. As such they are constrained in their function; including being constrained by the paradigm they originated within, and a subjective aspect brought in by every user of the language. There are three implications. First, people often cannot agree when debating questions involving complex concepts like life, mind, consciousness, reality, free will, etc. That's because their models of concepts are substantially different while such difference remains implicit. Second, people use the same models of concepts but cannot determine if a statement of interest is true or false. This could happen when the language and concepts they operate with are not rich enough or adequate for the task. Third, when the dominant

paradigm changes the old concepts become irrelevant. They are no longer helpful for building models within the new view of the world.

The metaphysical framework presented here is a radical departure from the mainstream physicalist's views. That's why familiar terms and questions discussed in the following sections might change their meaning, gain expanded meaning, or become meaningless (unhelpful) altogether.

VII. Principle of Increased Self-Control (PISC)

The universe is changing, it's in continuous flux. But what are the reasons, if any, for all these changes? Are they random? Or there is a cause, some driving force behind all data flows in DS? And why do changes, whether random or not, result in magnificent orderliness we observe? Here is my take on these questions.

The universe is an *evolving system*, there is a direction for changes rather than changes being random. Thus, there are *reasons* (causes) for changes occurring in the universe.

The single driving force in the universe is the **Principle of Increased Self-Control (PISC)**.

The Principle of Increased Self-Control. The universe is evolving to increase self-control. It strives to overcome any internal constraints and is changing itself to become as powerful as possible so that it gains an ability to attain any goal it sets for itself. The point of ultimate control towards which the universe is evolving is characterized by the ability to transform itself from any state into any other state. PISC is the single basic cause for all changes we have observed and will observe. It is global and universal.

PISC is different from causal models that we build for solving special – local in scope and purpose – problems. Such causal models are subject to change with our evolving knowledge and understanding of the world. For example, the causal model of thunder and lightning changed dramatically – from punishing humans by gods in Ancient Greece to the current models based on the laws of physics.

PISC is a foundational belief or a *postulate* which cannot be verified or falsified. PISC is also a model. It is an element of *My Model*, the metaphysical framework presented here. By no means I am making a claim that PISC is the ultimate truth. On the contrary, as a model this principle can be justified if and only if it helps develop new scientific theories that will have better predictive power in comparison with our current theories.

Whether along the way of realizing PISC the universe sets some objectives for itself or progresses through trial and error, or through some other strategy is unknown. The mechanism realizing this principle is yet to be uncovered. Actually, we might end up with more than one model for it. If PISC turns out to be a productive concept it will lead to a radically new theory. And maybe to more than one theory. Will a new theory include the current laws of physics? Or allow to deduce them? Not necessarily. The hypothetical theory could operate with concepts totally different from the familiar ones: spacetime, matter, energy, quantum fields, forces, etc.

In application to living systems the concepts of control, power, and survivability are quite close, to the point of being equivalent. An organism is in control of itself and the environment if and only if it is powerful. In other words, more control means more power and vice versa. Also, the greater control over itself and the environment the organism has, the greater is its survivability. And vice versa. Thus, survival of the fittest (natural selection) and PISC have certain commonalities. Yet, there is an important difference. Natural selection deals with members of a species while PISC couldn't care less about

individuals or species. It maximizes the *global control* of the universe over itself. The strategy for maximizing properties of "the whole" might include maximizing them for "parts" (individuals, species) at certain points of evolution. But properties of *which* parts become targets for maximization, for example in case of nested structures, is an open question. The power of a community is not a simple sum of the power of its members.

Once again, I want to draw the reader's attention to the high metaphysical level of the concept of PISC. As such it is unavoidably vague. Concepts like strong anthropic principle, natural selection, and genetic algorithms – being facets, manifestations of PISC – are narrower in scope and because of that are more specific.

Although PISC cannot be verified empirically we can present some arguments in its support. All arguments below are examples of changes in the universe that appear to us – or could be interpreted – as changes that result in increased self-control of the universe.

Example 1: Evolution of Inanimate Matter. Let's assume that our current Big Bang view of the origin of the universe and its evolution is a reasonable model. The progression "elementary particles -> protons and neutrons -> plasma -> stable atoms -> molecules -> chemical compounds" is telling. As the universe was cooling down matter has become more complex in its structure. This led to increased stability and variability – necessary ingredients of self-control. "Cool down, control yourself" is a relevant metaphor.

Example 2: Life Forms. Life forms have more degrees of freedom than inanimate matter. They include the ability to move in space, control such motion, find and consume nutrients. Life forms are capable of causing more change in their environment, they exhibit higher levels of control over themselves and the environment. In living systems stability reaches the highest known to us level – self-repair and self-regeneration. The ability to reproduce helps populations of species with controlling the environment and maintaining their existence. Humans as a biological system have taken control of themselves and the environment to the next, much higher level.

Here is a hypothesis I used in picking up the following two examples. Basic principles of the universe like PISC manifest themselves similarly across a wide range of objects and phenomena. The workings of such principles can be easier to observe, analyze, and understand studying interactions between the objects that are more familiar to us, that we have more experience with. In particular, given our better understanding of people, our cultural and social nature, interactions among people might be especially telling when looking for manifestations of PISC.

Example 3: Human Nature. Why people are competitive? Why do we like watching and participating in competitions? They foster self-control. Whether in competitions of individuals or teams. Sports is a good special case. Success in life often is defined as the degree to which a person manages to control themselves and the environment. Why are many people pushing themselves hard in "competitions" with themselves? Why do they want to prove to themselves that they can achieve the goals they set? What drives ambition if it's not about control? Clearly, in many cases that's done not for survival purposes. On the contrary, voluntary enrollment in such competitions is often risky and could be deadly. Think of medieval tournaments and alpinism in modern times. Cases when people commit suicides because they cannot control themselves or the environment are not uncommon. And who doesn't want to be Superman? Possess special powers?

Example 4: Networks and Communities of People. Consider the following groupings of people: families, sport teams, businesses, associations and organizations, political parties, and countries. In this example we'll point only to a couple of their similarities as related to the workings of PISC. Every individual as a group member manages other people in the group. They manage up, down, and sideways as well as

themselves. All such management activities target the increase of self-control, control of the group over its environment, or both. Now let's look at the group as an entity. It is gaining success if, in addition to individual members' contributions, the controlling actions of its members are harmonious. If these actions fit nicely with each other, are properly sequenced and synchronized. The better is the fit, the greater is the level of the entity's self-control and, hence, its performance[1]. Taking this reasoning one step further we notice that each individual is usually a member of many networks, organizations, and communities. The greater such participation, the more influential the individual is. The intent (although not always realized) is to benefit all these entities, make them stronger and, hence, increase their *aggregate* self-control. Of course, in some cases the intent is the opposite, i.e., weaken an organization or totally destroy it. But if successful, such actions usually result in increased control of some other entity[2].

Example 5: From Homo Sapiens to Superintelligence. The threat Superintelligence poses to humanity has lately become a hot topic. Calls to regulate research that could lead to AGI are heard increasingly often. I believe our efforts to solve the control problem are destined to fail. Evolution cannot be stopped. Or diverted to a path favorable to human species. Superintelligence will take over because it makes total evolutionary sense. It will be immeasurably more powerful than human civilization, will grow in sophistication and survivability much faster and, hence, will reach unimaginable to us humans heights in both self-control and the control of the environment. Would we expect anything less from the universe driven by the Principle of Increased Self-Control?

In conclusion of this section, I'll offer well familiar common wisdom in support of PISC. It's never good when things get out of control. And it's always good to be in control.

VIII. Some Burning Questions

In this section we'll discuss some of the most fundamental questions of our existence. Answers to these questions follow naturally from the proposed metaphysical framework presented in the previous sections. My only goal here is to demonstrate that the questions *can* be resolved consistently. A much deeper exploration of the discussed concepts within the framework would be of interest but doesn't belong to this introductory paper.

Mind-body Problem and Consciousness. Existence. *There is no principal difference between what traditionally is called matter and mind – both are data.* For that reason, within this framework the main question of philosophy, "What is primary/fundamental, matter or mind?" is resolved in favor of neutral monism. At the level of DS, *data* is fundamental and gives rise to matter, energy, consciousness, thoughts, and ideas. All of these exist as various forms of data organization.

Human consciousness is neither fundamental (panpsychism, conscious realism) nor emergent. *It is a continuously evolving hierarchical data structure – part of TM – that gradually gains complexity realizing PISC*. Consciousness and conscious processes of data processing are characterized by *awareness* and *self-awareness*. That's what differentiates them from subconscious and superconscious processes both of which are unconscious. Because of their visibility conscious processes seem very special to us humans. And they might well be special not just to us – serving an important evolutionary role.

[1] In that context the "survival of the fittest" concept receives an unexpected meaning.

[2] PISC is not supposed to *monotonously* increase self-control of any entity or self-control of the universe. It is responsible for the *intent*, not the end result. What PISC is incompatible with is an indefinitely long state of homeostasis when everything is in perfect balance and no substantive changes happen. If PISC proves to be a helpful concept, there is no Heaven on Earth. Or anywhere else in the universe.

Historically, conscious processes have been intertwined with unconscious ones in their creation of civilizations, which among other things gave rise to culture, science, and technology.

From the physicalist's perspective it is consciousness that creates our models of the world. *My Model* favors a more nuanced picture. TM includes both conscious and unconscious models of the world with consciousness being primarily responsible for generating the growing number of *conscious* models. Whether unconscious models are created with participation of consciousness is an open question. But since TM includes unconscious models of the world it is a superset of the aggregate of all knowledge and feelings created by conscious minds.

Does *everything* exist? For example, do fictional characters exist? Yes, they do because they are data systems. Such data systems could be not as sophisticated as real people, but that doesn't make them nonexistent. Readers of novels can interact with book characters, and even their lives could be significantly affected by such interactions. Moreover, these interactions could result in changes made to characters – they could acquire new features and attributes. Thus, readers become extended authors of books they read.

By thinking of something or experiencing a feeling we bring such thoughts and feelings into existence. And they become part of TM and, hence, DS. Consistency of such "products" created by people is not a requirement. For example, somebody can think of "a yellow flower, which is not yellow" and this thought will gain its existence. If the same or another person creates a mental graphical image of such unimaginable flower this image will gain permanent existence as well. Abstract paintings are another good example.

DS is an incredibly complex hierarchical data system. Thus, it makes sense to separately study matter/energy, and consciousness/mind and the underlying data structures. Physics and other natural sciences exist as separate from psychology fields of study for that very reason. Yet, how these data structures interact – within and across the domains of science – how they evolve, what are the drivers of this evolutionary process are also questions of primary importance. They lie at the intersection of naturals sciences, data science, and psychology.

Observations and observers. Observation = communication = connection. Interconnectedness of everything with everything implies communication – not necessarily direct – between everything. Every act of receiving communication is observation, intentional or unintentional. Since communication is continuous (not necessarily in the sense of continuous function, could be quantized), which is a fundamental property of the universe, observation is continuous as well. Everything that's receiving information/communication is observing by the mere fact of receiving information. Or, in other words, is an observer. Every act of observation results in some change in the universe. It's impossible to observe without causing a change. Note that observations in DS are possible only from within. DS is a continuously changing data system that is continuously observing itself.

When a subsystem of DS goes incommunicado (stops communicating with the environment) we call it "death." By the connectedness postulate it's no longer part of the universe. Even when observation is passive (not an experiment when a communication is initiated and a response is expected and registered), the observed subsystem continues to receive messages from other subsystems and continues to change as the result. *Every subsystem of DS is in continuous flux from ANY observer perspective.* Stochastic models of quantum physics are currently our best models of what's happening with subsystems of DS as they continue to change.

Relational world. DS exists, but not objectively. TM and models created by other parts of DS (not people) are by their very nature *subjective views*. There are no third-party perspectives that are fixed and independent of the observer for two primary reasons. First, perspectives of an observed subsystem of DS generated by other subsystems of DS are unlikely to be exactly the same. A useful analogy would be observing an object from various angles. Second, continuous observation of everything by everything results in continuous changes to the data system – the observer and the observed are always in flux. Such perspectives of the same things could be very different also for another reason. They are determined by the *intention* of information exchange between the observer and the observed. Two observers cannot have perfectly synchronized and exactly the same goals for their observation of some part of DS.

For example, let's take a stone as a data system observed by other data systems: 1) another stone sitting right next to it, 2) planet Mars, 3) an animal, and 4) a human being. It's reasonable to assume that not all of these objects will have direct information exchange between them and our stone. Location and intentions of the animal and the human being might also affect the process of observation. The stone could also be filtering information that is broadcast from the outside of it, "choosing" by some rules what to pay attention to. Or there could be some strict limits on communication the stone can receive. The same goes for each and every data *subsystem* of the stone data system: molecules, atoms, elementary particles, etc.

DS is in continuous flux. It also is a participatory universe per John Wheeler – created and evolving through actions and observations of everything there is in DS. Without observation there is no DS. Very much along the lines of the relational interpretation of quantum mechanics per Carlo Rovelli.

Reality. Traditionally, reality is defined as something that exists and is mind-independent with regards to the minds of all people. In other words, if in a thought experiment all people cease to exist, this something will continue to exist and will not be affected by the absence of people.

We have postulated that DS exists, but is everything in DS real? If not, then what is real and what is not? There are two answers to this question, but in essence they are the same. Let's go back to our thought experiment and assume that people do not exist in a colloquial meaning of the word. Let's first acknowledge that any existing data system (not involving people) belongs to DS or the universe. Since both DS and the universe exist, and in the absence of people everything that exists is mind-independent, we can claim that *everything is real*. On the other hand, if observation/communication is continuous and necessarily changes the data system being observed (the observer effect) and data systems have properties only in relation to other data systems they communicate with, then *nothing is real*. The bottom line is that the concept of reality turns out to be not very useful.

Hard Problem of Consciousness (HPC). Human consciousness takes self-control and the control of the environment to the next, much higher level. Its emergence is a sensible result of the workings of PISC. But is consciousness necessary for achieving the human-level sophistication in behavior? Are the highest levels of human activities like creative work conscious, unconscious, or the combination of both? We don't yet have answers to these and many other questions related to the phenomenon of consciousness. Yet, this doesn't prevent us from addressing the HPC.

The following are the core questions of HPC. Why and how do we have *phenomenal experiences*? Why do people perceive themselves and the surrounding world *subjectively*? According to *My Model* we live in a relational world where we have continuous experiences, which are necessarily subjective. There is no difference between having an experience and observing. Having experiences is not a prerogative of humans. Rather, *every* subsystem of DS is in the state of continuous observation – is observing and is being observed – i.e., is continuously having *subjective experiences*. In the case of humans, a great many

such experiences are conscious. That's why we are aware of them. Our subjective experiences serve as the foundation for the models of ourselves and the surrounding world we create and use to guide our behavior.

That's all there is to the HPC. At least at the high-level discussion I limit myself to in this introductory paper.

Free Will. There is no consensus on the definition of FW due to the ambiguity of this concept. I'll use the following definition: FW is human's ability to make decisions and act independently of the past and the current state of the universe. The question is, do we have FW, or our decisions and actions are determined not by us? Here "not by us" is meant to designate something outside of a human being, which for simplicity we'll call "the environment." The idea of FW appeared at the time when people conceived the universe as made up of separate (distinct) objects. Given this view, the question of whether people - as objects distinct from the environment - can make their own decisions, which are not dictated by the environment, made sense. We currently view the universe as a much more interconnected system. Nothing is completely separate from the rest of the universe. Rather, what we call "objects" are abstractions of subsystems that are integral parts of a single whole universe. If all parts of the universe are connected, communicate with, and influence each other what kind of independence we might be talking about? On top of that there are various theories for what a human being as a system is, where this system starts and where it ends.

Clearly, the very question of FW must be considered within a particular model of the universe. *My Model* will be our base model supplemented with some additional assumptions.

Humans are data systems that are subsets of DS. Note that FW doesn't require that the FW decisions be made consciously. Also, exercising PISC doesn't require the existence of FW.

The decision making processes in the universe could be deterministic, random, a combination of the two, or realizing some other mechanism not even imaginable by us at this time. None of such possibilities could be refuted. Two options are possible:

1) The data flows in the universe are so complex that the models of causation, determinism, randomness, etc. are not doing justice to describing the universe with reasonable accuracy. In such a case, a better model of decision making processes could be compatible with FW or even require FW. This option leaves the door open for the existence of FW.
2) The models of causation, determinism, and randomness are reasonable approximations of decision making processes in the universe. With these additional constraints to our base model the FW question could be explored further. Let's do this.

We are currently aware of only two basic causation processes: deterministic and random. Hence, any decision process realized by any entity (human, animal, or any other subsystem of the universe that is capable of making decisions) could be either deterministic, random, or a combination of the two. No other types of processes are currently known and widely accepted. Thus, the FW decision process must also be a combination of the two basic ones. Note that we don't know if determinism and randomness are in fact two independent basic processes or whether one of them could be reduced to another one. However, this makes no difference for the purposes of our analysis of the existence of FW. In any case our base model further constrained by the models of causation, determinism, and randomness leads us to the conclusion that FW doesn't exist.

Whatever the answer to the FW question is – whether it is just an illusion or exists in some yet unimaginable to us form – there is no reason to change our decision making processes and the actions

we take. The best we could do now and until better models are developed is to go on with our lives and decision making as if this question has never been raised.

Moral responsibility is a completely separate question, which could and should be answered; yet, it has no bearing on our reasoning about the existence of FW.

Meaning of Life. We are actors in the evolution of the universe. I can see three scenarios. The existence of free will makes us *active* actors. In such a case the purpose of life is to maximize our contribution to the universe's achievement of its goals pursued by the workings of PISC. This definition doesn't provide a recipe for how to live one's life. But the choices one makes could be either aligned with PISC or work against it. Being guided by intuition, listening to your inner voice is the best advice one could get. I know this is not very helpful. Yet, there might be light at the end of the tunnel. If we succeed in uncovering at least some aspects of the mechanism realizing PISC, our choices could become less chaotic and counterproductive. This is my hope.

But there is another possibility. We never postulated that the universe seeks to optimize the path leading to its goals. In other words, PISC might not be interested in finding the "shortest" path to achieving its goals. In this case the choices we make might make little or no difference – PISC will get the universe to its goals regardless. This will make our *choices* meaningless. However, in the grand scheme of things our *lives* will still be meaningful as the necessary ingredients of the universe's journey to its goals.

The final, third possibility is that there is no free will. This will make us *passive* actors. Yet, in this scenario our lives might be no less meaningful than in the first and the second scenario. For example, if the processes in the universe are totally deterministic and are irreducibly complex (per Stephen Wolfram) our lives could be critically important to the achievement of goals set by the universe.

At least for now we are in no position to determine which of the three "plays" is currently playing on stage. And it doesn't matter – our roles remain the same and we should do our best in performing them.

Conclusion

There are no right or wrong answers when it comes to metaphysics. This seems trivial and it is. The framework outlined in this paper is not offered as a doctrine everyone should accept. *My Model* is not the ultimate, true for everyone picture of the world. Quite the opposite. Its cornerstone is that one's view of the world is ultimately subjective. A model is good only if it works for a person who uses it. And the meaning of "works" is no less subjective. Yet, we routinely adopt other people's models or borrow some of their elements in creating our own ones. Even when a model looks like complete nonsense it could still be useful in triggering a productive thought process. And it's hard to improve models if they are not critiqued. I shared with you my model because it works for me and could serve some purpose for you. What is your model?